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B.A./B.Sc. (General) 6th Semester
(2056)

CHEMISTRY (Same for B.Sc. Microbial and food
Technology)

Paper : XXI : Inorganic Chemistry-B

Time Allowed : Three Hours]

[Maximum Marks : 22

Note :— Attempt FIVE questions in all, selecting ONE question from each Unit I - IV. Unit V is compulsory.

UNIT-I

- (a) Are Silicon and Silicone the same? Give a brief account of synthesis of Silicones.

(b) What are polyphosphazenes? Discuss the Island Model of structure and bonding in $(\text{NPCl}_2)_3$. 2,2
- (a) Name and explain three classes of Silicone Elastomers.

(b) How do the π -system in cyclic $(\text{NPCl}_2)_3$ differ from π -system in C_6H_6 ? 2,2

UNIT-II

- (a) Define Pearson's HSAB principle. Differentiate Hard and Soft bases.

(b) Explain the relationship between electronegativity and hardness. 2,2

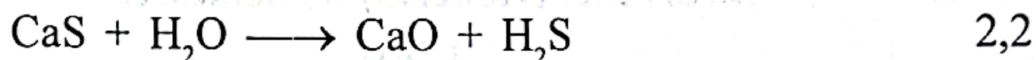
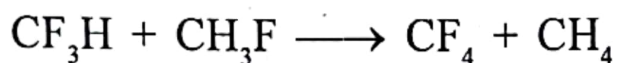
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4. (a) Explain Symbiosis with examples.
- (b) How does HSAB principle explain the validity of the following reactions?



UNIT-III

5. (a) Draw Combined Orgel diagram for d^1 and d^9 Tetrahedral Complexes.
- (b) Explain selection rules for d-d transition. 2,2
6. (a) Calculate Ground state term symbol and number of microstates for d^4 and d^7 octahedral systems.
- (b) Discuss Spectrochemical series. 2,2

UNIT-IV

7. (a) Give two advantages and disadvantages of Gouy's method for measuring magnetic susceptibility.
- (b) Explain the following:
- (i) TIP
- (ii) Diamagnetic Correction. 2,2
8. (a) Discuss Orbital contribution to magnetic moment in complexes.
- (b) What is magnetic susceptibility? How does it vary with temperature? 2,2

UNIT-V

9. (a) What are silicon oils? Explain.
- (b) $[\text{AgI}_2]^-$ is stable but $[\text{AgF}_2]^-$ is unstable. Why?
- (c) Discuss L-S Coupling.
- (d) Calculate Spin only magnetic moment for Mn^{+2} and Co^{+2} . 1.5×4